CUPS Software Users Manual

CUPS−SUM−1.1

Easy Software Products

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Preface

This software users manual describes how to use the Common UNIX Printing System ("CUPS") Version 1.1.

System Overview

The Common UNIX Printing System provides a portable printing layer for UNIX® operating systems. It has been developed by Easy Software Products to promote a standard printing solution for all UNIX vendors and users. CUPS provides the System V and Berkeley command−line interfaces.

CUPS uses the Internet Printing Protocol (IETF−IPP) as the basis for managing print jobs and queues. The Line Printer Daemon (LPD, RFC1179), Server Message Block (SMB), and AppSocket protocols are also supported with reduced functionality.

CUPS adds network printer browsing and PostScript Printer Description ("PPD")−based printing options to support real world applications under UNIX.

CUPS also includes a customized version of GNU GhostScript (currently based off GNU GhostScript 5.50) and an image file RIP that is used to support non−PostScript printers.

Document Overview

This software users manual is organized into the following sections:

- 1 − Printing System Overview
- 2 − Using the Printing System

- 3 − Standard Printer Options
- 4 − Checking the Status Via the Web

2 – Using the Printing System

This chapter shows you how to submit, query, and cancel print jobs to different printers.

Submitting Files for Printing

CUPS provides both the System V (`lp`) and Berkeley (`lpr`) printing commands. To print a file to the default printer on the system (or your only printer if you have only one) you just need to type:

```
% lp filename ENTER
```

or:

```
% lpr filename ENTER
```

CUPS understands many different types of files directly, including PostScript and image files. This allows you to print from inside your applications or at the command−line, whichever is most convenient!

Choosing a Printer

Many systems will have more than one printer available to the user. These printers can be attached to the local system via a parallel or serial port, or available over the network.

To see a list of available printers, use the `lpstat` command:

```
% lpstat -p -d ENTER
```

The "-p" option specifies that you want to see a list of printers, and the "-d" option reports the current system default printer or class.

To print to a specific printer, use the "-d" option to the `lp` command:

```
% lp -d printer filename ENTER
```

or the "-P" option to the `lpr` command:

```
% lpr -P printer filename ENTER
```

Setting Printer Options

For many types of files, the default printer options may be sufficient for your needs. However, there may be times when you need to change the options for a particular file you are printing.

The `lp` and `lpr` commands allow you to pass printer options using the "-o" option:

```
% lp -o landscape -o scaling=75 -o media=A4 filename.jpg
% lpr -o landscape -o scaling=75 -o media=A4 filename.jpg
```

The available printer options vary depending on the printer. The standard options are described in Chapter 3.

Printing Multiple Copies

Both the `lp` and `lpr` commands have options for printing more than one copy of a file:

```
% lp -n num-copies filename ENTER
% lpr -#num-copies filename ENTER
```

Copies are normally *not* collated for you. To get collated copies use the "-o Collate=True" option:

```
% lp -n num-copies -o Collate=True filename ENTER
% lpr -#num-copies -o Collate=True filename ENTER
```

Checking the Printer Status from the Command-Line

The `lpstat` command can be used to check for jobs that you have submitted for printing:

```
% lpstat ENTER
Printer-1 johndoe 4427776
Printer-2 johndoe 15786
Printer-3 johndoe 372842
```

The jobs are listed in the order they will be printed. To see which files and printers are active, use the "-p" option:

```
% lpstat -p ENTER
```

```
printer DeskJet now printing DeskJet-1.
```

Or to show the jobs and the printers, use the "-o" and "-p" options:

```
% lpstat -o -p ENTER
Printer-1 johndoe 4427776
Printer-2 johndoe 15786
Printer-3 johndoe 372842
printer DeskJet now printing DeskJet-1.
```

Checking the Printer Status from the Web

Since CUPS uses the Internet Printing Protocol, it is also a full-featured web server. To use your web browser to monitor the printers on your system, open the URL "http://localhost:631". From there you can view the status of classes, jobs, and printers with the click of a button!

Canceling a Print Job

The `cancel` and `lprm` commands cancel a print job:

```
% cancel job-id ENTER
% lprm job-id ENTER
```

The *job-id* is a number that was reported to you by the `lp` or `lpstat` commands.

3 − Standard Printer Options

This chapter describes the standard printer options that are available when printing with the `lp` and `lpr` commands.

General Options

The following options apply when printing all types of files.

Selecting the Media Size, Type, and Source

The "−o media=xyz" option sets the media size, type, and/or source:

```
% lp −o media=Letter filename ENTER
% lp −o media=Letter,MultiPurpose filename ENTER
% lpr −o media=Letter,Transparency filename ENTER
% lpr −o media=Letter,MultiPurpose,Transparency filename ENTER
```

The available media sizes, types, and sources depend on the printer, but most support the following options (case is significant):

- `Letter` − US Letter (8.5x11 inches, or 216x279mm)
- `Legal` − US Legal (8.5x14 inches, or 216x356mm)
- `A4` − ISO A4 (8.27x11.69 inches, or 210x297mm)
- `COM10` − US #10 Envelope (9.5x4.125 inches, or 241x105mm)
- `DL` − ISO DL Envelope (8.66x4.33 inches, or 220x110mm)

- `Transparency` − Transparency media type or source
- `Upper` − Upper paper tray
- `Lower` − Lower paper tray
- `MultiPurpose` − Multi−purpose paper tray
- `LargeCapacity` − Large capacity paper tray

The actual options supported are defined in the printer's PPD file in the `PageSize`, `InputSlot`, and `MediaType` options.

Setting the Orientation

The "−o landscape" option will rotate the page 90 degrees to print in landscape orientation:

```
% lp −o landscape filename ENTER
% lpr −o landscape filename ENTER
```

Printing On Both Sides of the Paper

The "−o sides=two−sided−short−edge" and "−o sides=two−sided−long−edge" options will enable duplexing on the printer (if the printer supports it.) The "two−sided−short" option is suitable for landscape pages, while the "two−sided−long" option is suitable for portrait pages:

```
% lp −o sides=two−sided−short−edge filename ENTER
% lp −o sides=two−sided−long−edge filename ENTER
% lpr −o sides=two−sided−long−edge filename ENTER
```

Selecting a Range of Pages

The "−o page−ranges=pages" option selects a range of pages for printing:

```
% lp −o page−ranges=1 filename ENTER
% lp −o page−ranges=1−4 filename ENTER
% lp −o page−ranges=1−4,7,9−12 filename ENTER
% lpr −o page−ranges=1−4,7,9−12 filename ENTER
```

As shown above, the *pages* value can be a single page, a range of pages, or a collection of page numbers and ranges separated by commas. The pages will always be printed in ascending order, regardless of the order of the pages in the "page−range" option.

To select the even or odd pages, use the "−o page−set=set" option:

```
% lp −o page−set=odd filename ENTER
% lp −o page−set=even filename ENTER
% lpr −o page−set=even filename ENTER
```

N−Up Printing

The "−o number−up=value" option selects N−Up printing. N−Up printing places multiple document pages on a single printed page. CUPS supports 1−Up, 2−Up, and 4−Up formats:

```
% lp −o number−up=1 filename ENTER
```

```
% lp -o number-up=2 filename ENTER
% lp -o number-up=4 filename ENTER
% lpr -o number-up=4 filename ENTER
```

The default format is 1-Up.

Setting the Brightness

You can control the overall brightness of the printed output using the "-o brightness=percent" option:

```
% lp -o brightness=120 filename ENTER
% lpr -o brightness=120 filename ENTER
```

Values greater than 100 will lighten the print, while values less than 100 will darken it.

Setting the Gamma Correction

You can control the overall gamma correction of the printed output using the "-o gamma=value" option:

```
% lp -o gamma=1700 filename ENTER
% lpr -o gamma=1700 filename ENTER
```

Values greater than 1000 will lighten the print, while values less than 1000 will darken it. The default gamma is 2200 which matches the sRGB specification.

Text Options

The following options apply when printing text files.

Setting the Number of Characters Per Inch

The "-o cpi=value" option sets the number of characters per inch:

```
% lp -o cpi=12 filename ENTER
% lpr -o cpi=12 filename ENTER
```

Setting the Number of Lines Per Inch

The "-o lpi=value" option sets the number of lines per inch:

```
% lp -o lpi=8 filename ENTER
% lpr -o lpi=8 filename ENTER
```

Setting the Number of Columns

The "-o columns=value" option sets the number of text columns:

```
% lp -o columns=2 filename ENTER
% lpr -o columns=2 filename ENTER
```

Setting the Page Margins

Normally the page margins are set to the hard limits of the printer. To adjust the page margins use the "−o page−left=value", "−o page−right=value", "−o page−top=value", and "−o page−bottom=value" options:

```
% lp −o page−left=value filename ENTER
% lp −o page−right=value filename ENTER
% lp −o page−top=value filename ENTER
% lp −o page−bottom=value filename ENTER
% lpr −o page−bottom=value filename ENTER
```

The *value* argument is the margin in points; each point is 1/72 inch or 0.35mm.

Pretty Printing

The "−o prettyprint" option puts a header at the top of each page with the page number, job title (usually the filename), and the date. Also, C and C++ keywords are highlighted, and comment lines are italicized:

```
% lp −o prettyprint filename ENTER
% lpr −o prettyprint filename ENTER
```

Image Options

The following options apply when printing image files.

Scaling the Image

The "−o scaling=percent" and "−o ppi=value" options change the size of a printed image:

```
% lp −o scaling=percent filename ENTER
% lp −o ppi=value filename ENTER
% lpr −o ppi=value filename ENTER
```

The scaling *percent* is a number from 1 to 800 specifying the size in relation to the page (*not* the image.) A scaling of 100 percent will fill the page as completely as the image aspect ratio allows. A scaling of 200 percent will print on up to 4 pages.

The ppi *value* is a number from 1 to 1200 specifying the resolution of the image in pixels per inch. An image that is 3000x2400 pixels will print 10x8 inches at 300 pixels per inch, for example. If the specified resolution makes the image larger than the page, multiple pages will be printed to satisfy the request.

Adjusting the Hue (Tint) of an Image

The "−o hue=value" option will adjust the hue of the printed image, much like the tint control on your television:

```
% lp −o hue=value filename ENTER
% lpr −o hue=value filename ENTER
```

The *value* argument is a number from −360 to 360 and represents the color hue rotation. The following table

summarizes the change you'll see with different colors:

Original	hue=−45	hue=45
Red	Purple	Yellow−orange
Green	Yellow−green	Blue−green
Yellow	Orange	Green−yellow
Blue	Sky−blue	Purple
Magenta	Indigo	Crimson
Cyan	Blue−green	Light−navy−blue

Adjusting the Saturation (Color) of an Image

The "−o saturation=percent" option adjusts the saturation of the colors in an image, much like the color knob on your television:

```
% lp −o saturation=percent filename ENTER
% lpr −o saturation=percent filename ENTER
```

The *percent* argument specifies the color saturation from 0 to 200. A color saturation of 0 produces a black−and−white print, while a value of 200 will make the colors extremely intense.